Effects-Based Operations…

The Way Ahead

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Boeing

Outline

1. **The *"why"* and *"what"* of EBO**
2. **Complex Operations in the Cognitive Domain**
3. **Implications for Network Centric Operations**

1. The *Why*'s of Effects-Based Operations

US Drivers

- **Asymmetric "niche" foes**
  - **Seek to wear down US will by attacking changing vulnerabilities**
  - **No boundary between war and peace**
  - **Attrition approach won't work**
- **Multi-dimensional post 9/11 threat**
  - **"Man-pack" weapons of mass destruction**
  - **Rising importance of "post conflict stabilization ops"**

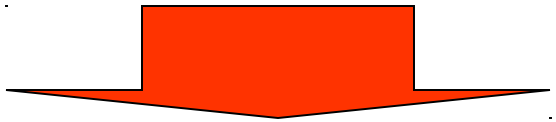
Allied Drivers

- **Need force multiplier to balance diminishing numbers *but*..**
- **Network centric not enough**
  - **Must not be limited to targeting precision weapns**
  - **Must be applied to broad spectrum of real world ops**
  - **Must focus on human dimension**

Why: Symmetric vs. Asymmetric Competitors

Symmetric: ***Opponents have roughly equal means and will***

Great Means	**vs.**	**Great Means**
Great Will		**Great Will**

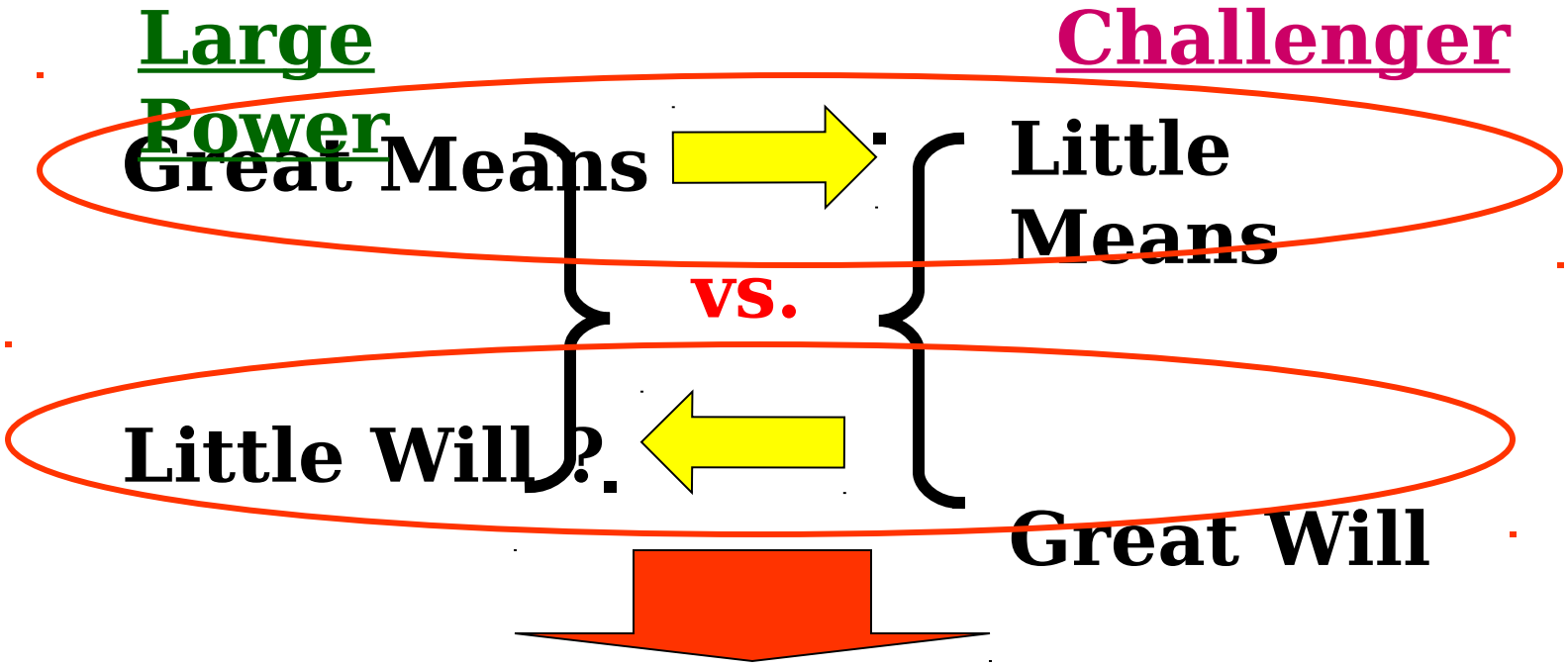


Attrition-based Warfare:

Wearing Down the Physical Capacity for War

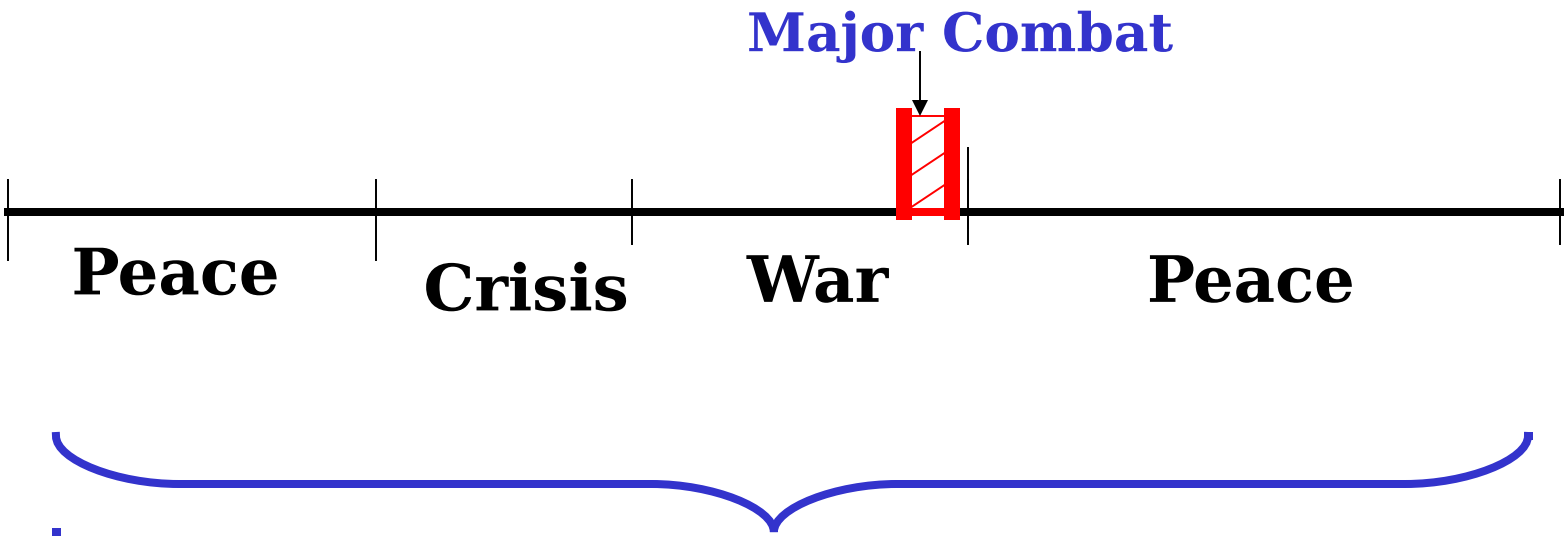
Why: Asymmetric Niche Competitors

Opponents have unequal means and will



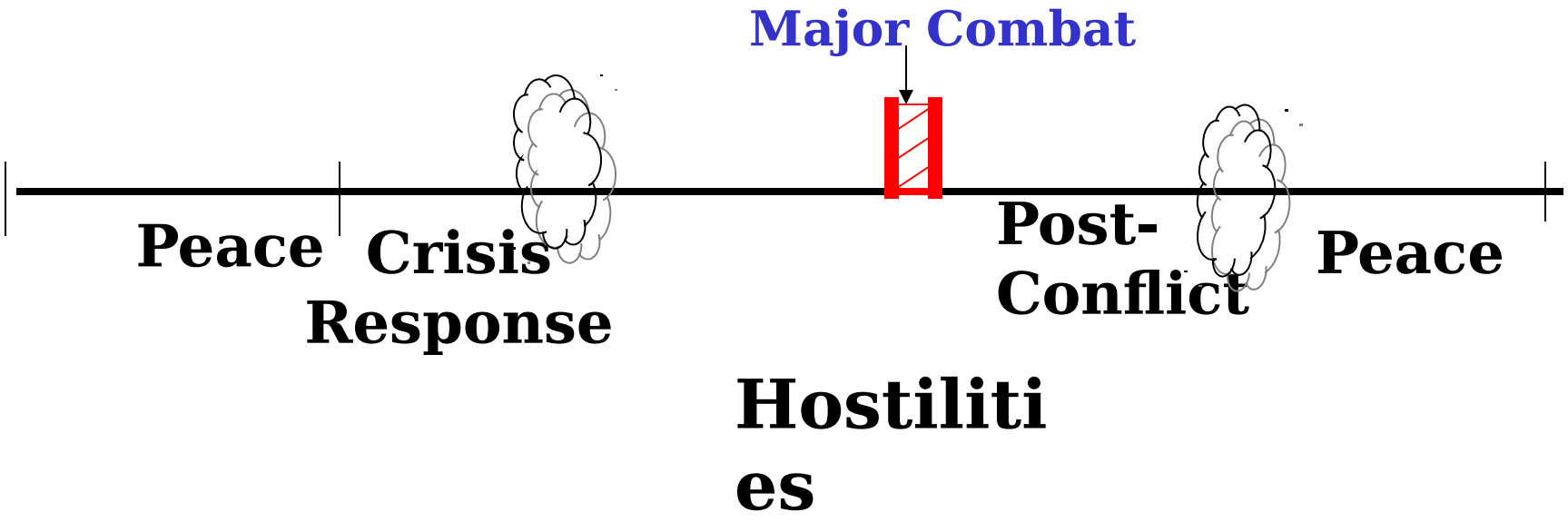
Two Different Asymmetries
Two Different Approaches

Why: Spectrum of Military Operations



"lesser included cases"
"operations other than war"

Why: New Spectrum?



Why: Approaching a Village

- **Industrial Age: Attrition-based Physical Targeting Problem**
  - **Right targets, weapons, numbers, time, but…**
  - **Three "ifs"**
    - **Major Combat + Right ROE**
    - **Known uniformed enemy**
    - **No civilians**

- **Information Age: Cognitive/Social Problem**
  - **Right actions, right timing, right effects**
  - **Complex situation, incomplete ROE**
    - **No civil-military separation, human shields**
  - **Whose cognitive domain?**
    - **Multiple audiences**
    - **Foe seeking media "effect"**
  - **Interaction on-going**
    - **No beginning or end**
    - **Peace, crisis, war, post war, peace continuum**

What

Effects-Based Operations:

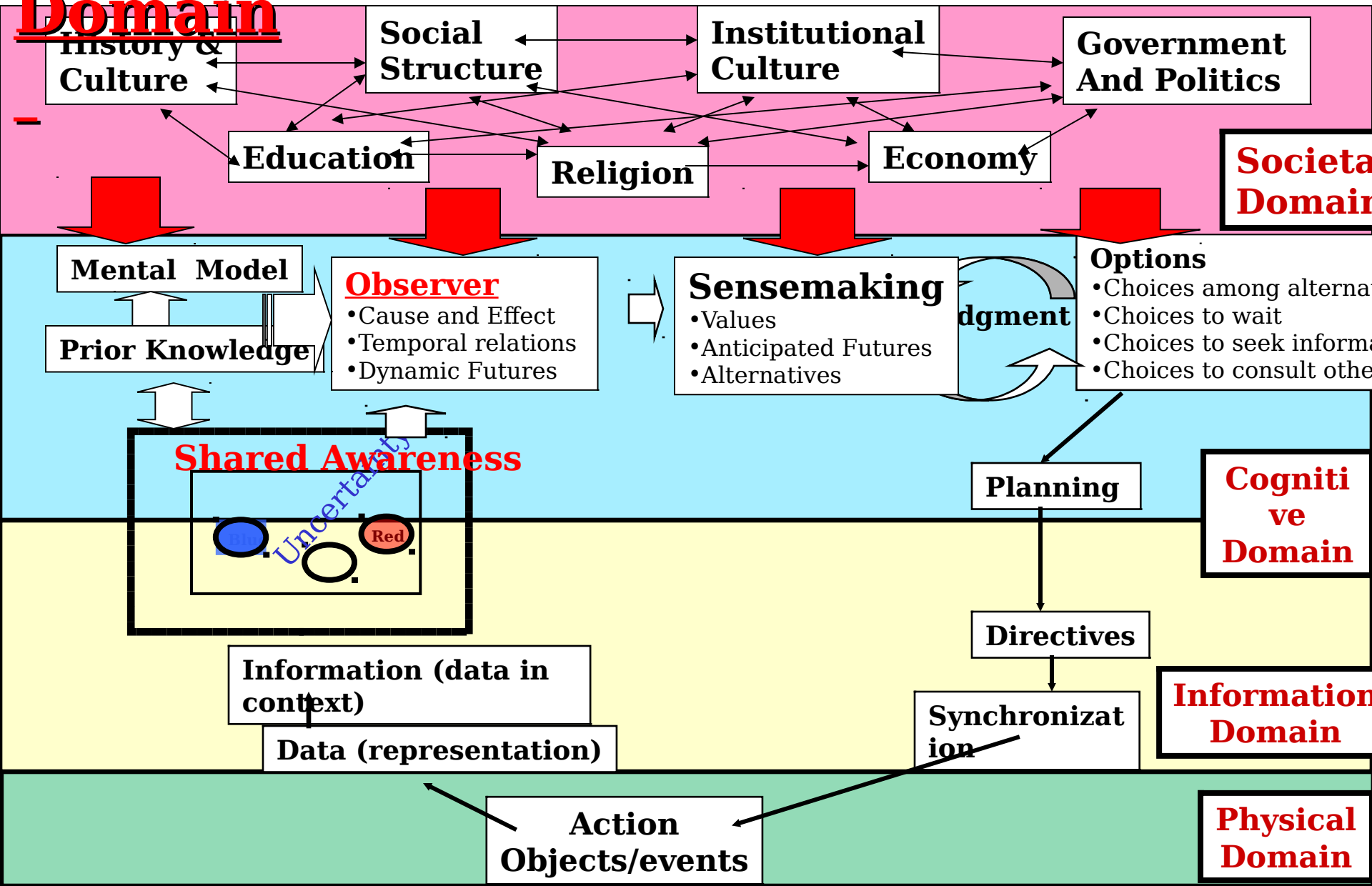
Coordinated sets of actions
directed at shaping the
behavior
of friends, foes, and neutrals
in peace, crisis, and war

Effects-Based Operations

Two Main US Tracks:

- **Track One: Effects-based "Targeting"**
  - **Air Force School**
    - **Precision strike to create non-linear psychological effects**
    - **Major combat focus**
- **Track Two: Effects-Based *Operations***
  - **Maneuverist School –Special Forces/ Marine Corps**
  - **Naval School – Crisis Operations**
  - ***Actions* to create psychological effects on observers**
    - **Stimulus and response approach**
    - **Focus: Peace, crisis, war …and post-conflict stabilization**
    - **Applied national power**

3. Complex Operations in the Cognitive Domain



Rules of EBO

- ***Actions*** **create effects … on any observer who can see them**
- **Effects occur simultaneously…**
  - **…on four different levels of military operations and**
  - **…in political, diplomatic, economic and military arenas**
- **Effects are cumulative and interrelated**
- **Effects are physical and psychological**

...and "Complexity"

- **Simple Linear systems:** **Limited definable variables**
  - **Causes and effects demonstrable, additive, repeatable**
  - **Inputs/outputs proportional; whole equals sum of parts**
- **Complex Non-linear systems:** **Multiple interdependent variables**
  - **Cause and effect not necessarily evident, replicable**
  - **Inputs and outputs not proportional; whole does not equal sum of the parts**
- **Complex Adaptive Systems**
  - **Non-linear systems that change and adapt to stimuli without central direction**
  - **Peace, crisis, war = interactions between complex adaptive systems**

EBO pay-off derives from non-linearity-
Small efforts to produce large results

Complexity One: Orchestrating Actions

- **What will they see?**
  - **Focus**
  - **Force applied**
  - **Scale**
  - **Scope**
  - **Timing**
    - **speed**
    - **duration**
    - **synchronicity**
  - **Visibility**

What is done

+

How it is done

Tools For Shaping

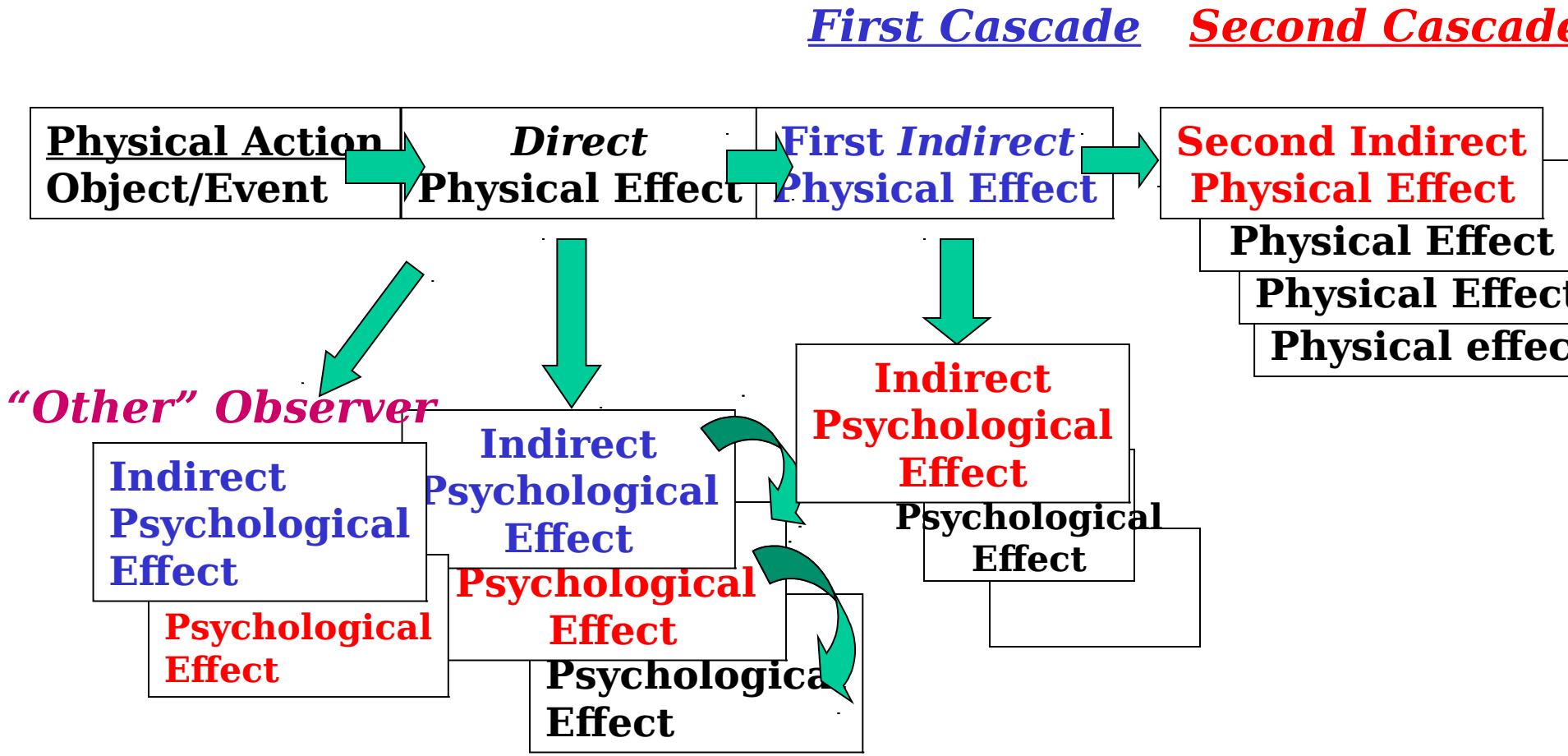
Complexity Two: Orchestrating Effects

- **To do what? Kinds of Effects**

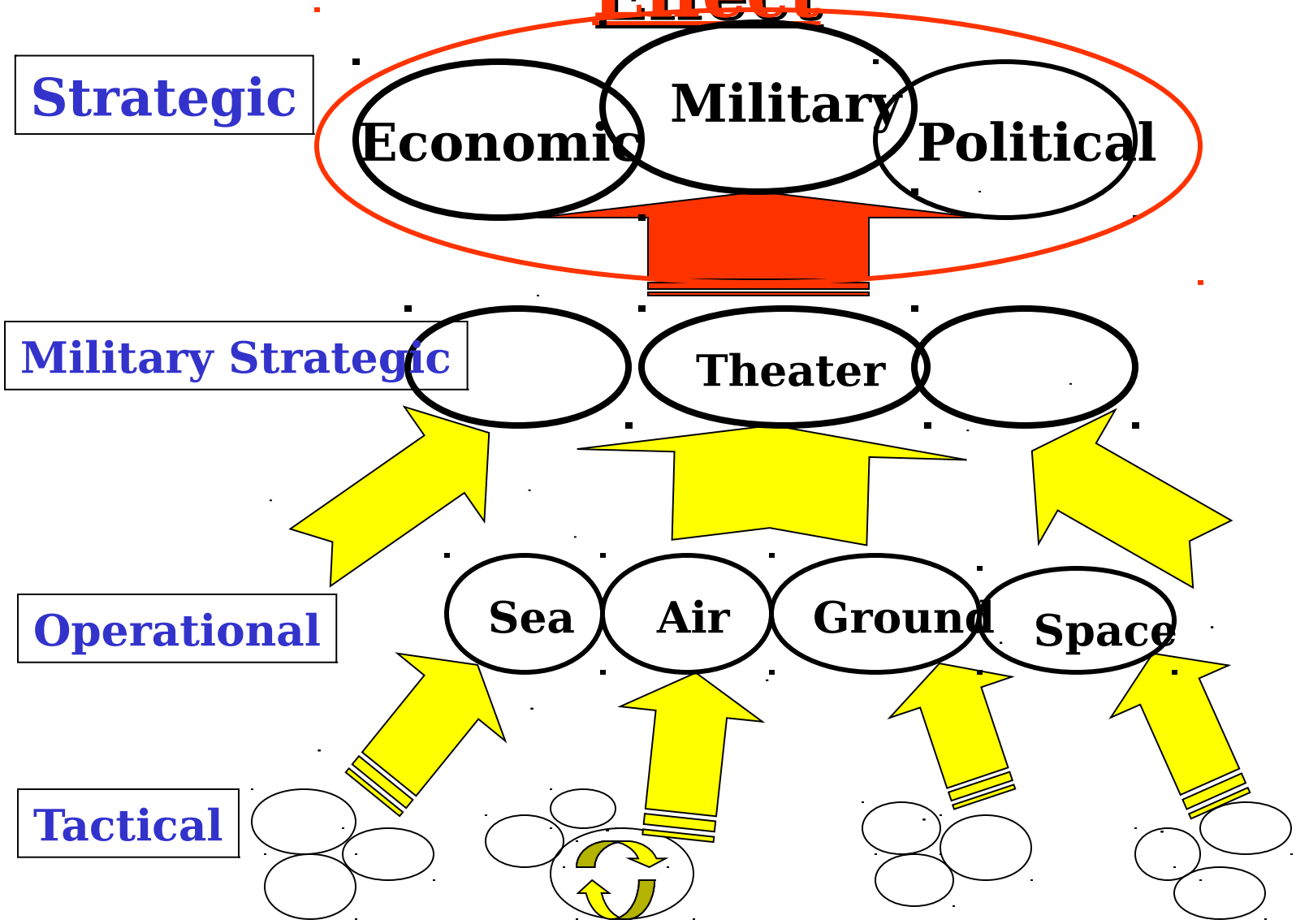
  - **Destruction**
  - **Physical Attrition**
  - **Chaos/ Entropy**
  - **Foreclosure**
    - **Passive**
    - **Active**
  - **Shock**
  - **Psychological Attrition**

Overall Effect

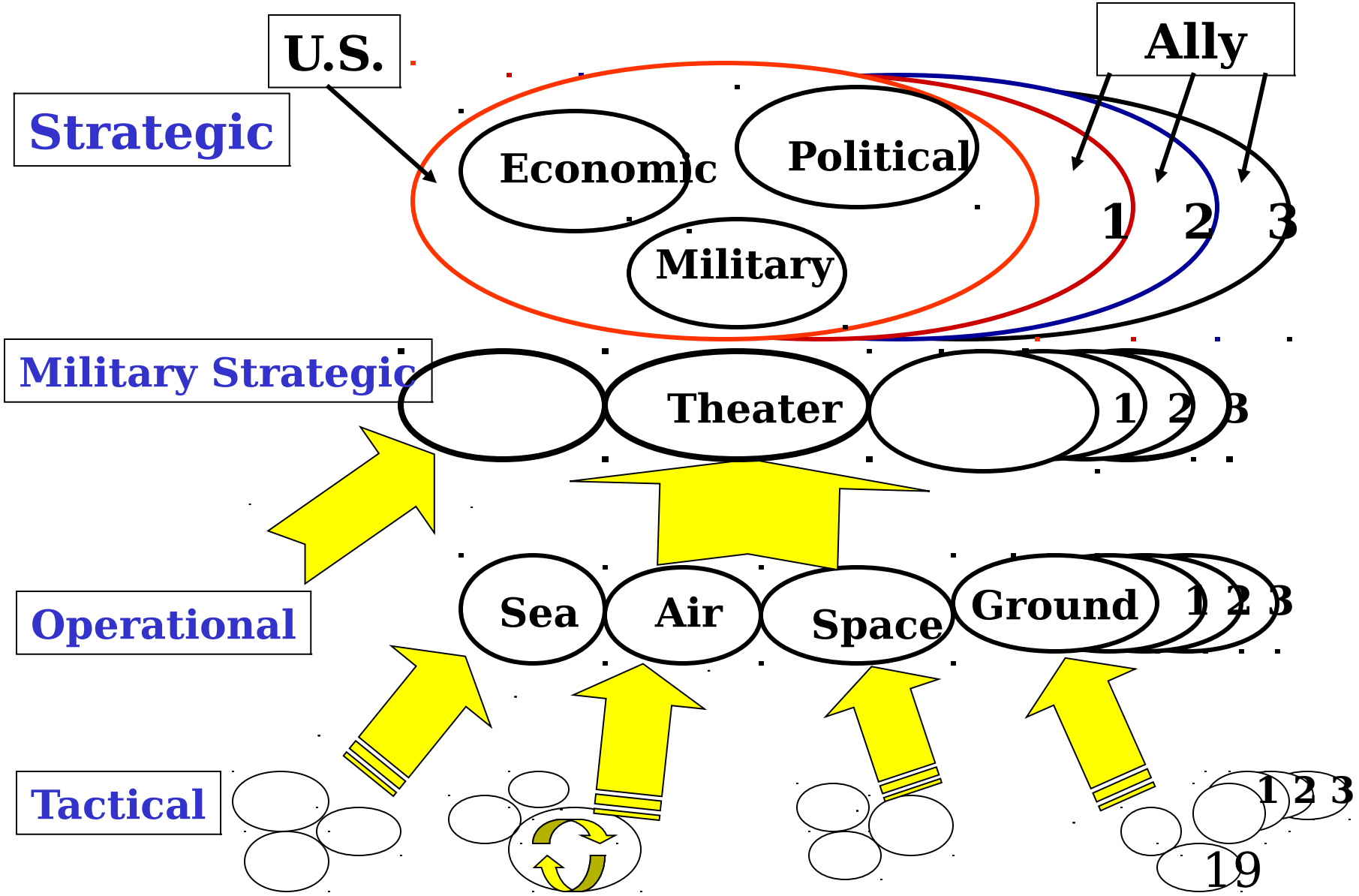
Complexity Three: Managing Effects Cascades



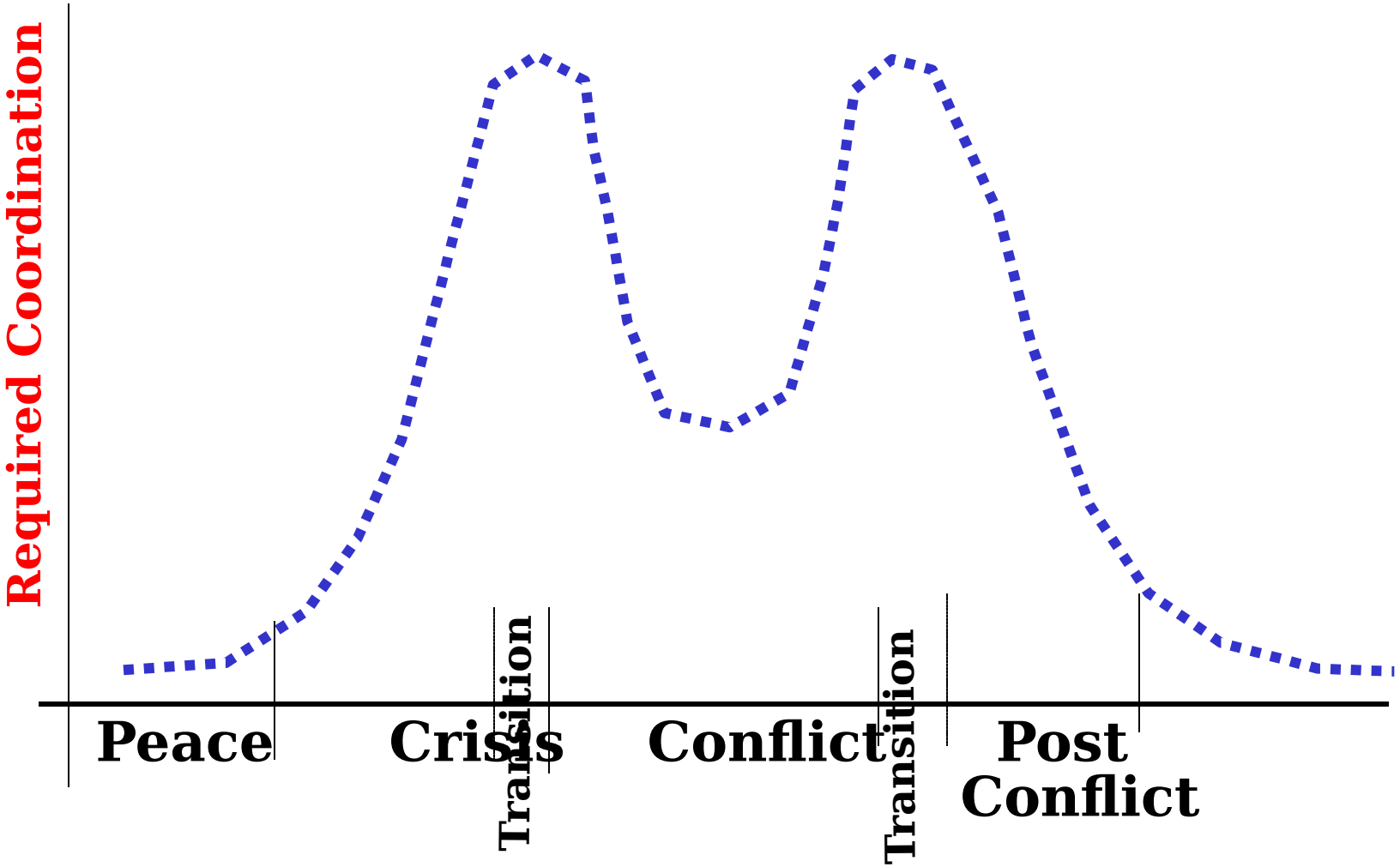
Complexity Four: Deconflicting Actions to Achieve Unified *National* Effect



...or a unified *Coalition* effect



...and Coordination over Time



The Fedora Curve

4. Implications for C2

Challenges

- **EBO inherently "complex," "non-linear"**
  - **New analytical paradigm**
    - **Bounding vice quantifying the problem**
  - **Put man back in the "loop"**
    - **Where? Who? With what?**
      - **Decision-aids**
    - **Feedback**
  - **Requires fusion of dissimilar information and *knowledge***
    - ***Networking***

Opportunities

- **EBO offers real potential**
  - **For *non*-linear payoff from Network Centric investment**
  - **For dealing with asymmetric adversaries**
  - **For operations across spectrum of conflict**

...to "Second Generation Network Centric Operations"

- From *Networks*
  - Faster targeting
  - More efficient attrition ...and
  - "man *out of* the loop"
- To *Networking*
  - Effects-Based Operations
  - Dealing with and Exploiting Complexity
  - "supporting the man in the loop"

Conclusions

- **Post 9/11 world requires network-enabled EBO**
  - **Asymmetric niche foes**
  - **Operations across peace, crisis, hostilities spectrum**
  - **Dealing with and exploiting non-linearity/ complexity**

- ***…but* EBO and Complexity pose challenges**
  - **New modes of operational analysis and thinking**
  - **New applications for technology**
    - **“Networking” vice “Networks”**
  - **New approach to acquisition**